



Korambayil Ahamed Haji Memorial UNITY WOMEN'S COLLEGE, MANJERI

Affiliated to the University of Calicut Reaccredited by NAAC at B++
Grade Narukara PO, Manjeri, Malappuram, Kerala, India

Department of Mathematics

Value Added Course

Course Name	Reliability Models
Course Code	MATVA001
Duration	30 Hours

About the course: Reliability is now a well-recognized and rapidly developing branch of engineering. Since reliability models are considered essential for the proper use and maintenance of engineering systems and equipment, understanding reliability models would be beneficial for a student. That will give an idea of how the reliability of the system is evaluated.

Course Objective:

1. Demonstrate the approaches and techniques to assess and improve process and/or product quality and reliability.
2. Illustrate the basic concepts of modern reliability engineering.

Course Outcomes:

Upon completion of this course the student will be able to:

1. Attain fundamental knowledge of statistics and probability
2. Acquire basic knowledge of total quality management
3. Understand the concepts of reliability.
4. Able to calculate reliability of a series or parallel System.

Prerequisites:

1. STA1C01: Introductory Statistics.

2. STA2C02: Probability Theory

Course Content:

Module 1:

Reliability and Quality, Failures and Failure Modes, Causes of Failures.

Module 2:

Maintainability and Availability, Nonmaintained systems, Maintained systems.

Module 3:

Component Reliability, Mean time to failure, Hazard Models.

Module 4:

System Reliability Models, systems with components in series, parallel. K-out-of-m systems.

References:

1. Balagurusamy, E. *Reliability engineering*. Tata McGraw-Hill Education, 1984.
2. Trivedi, Kishor S. *Probability & statistics with reliability, queuing and computer science applications*. John Wiley & Sons, 2008.